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Citation for published version (APA):

de Grip, A. (2005). Skill Obsolescence and Employability. In I. Marx & W. Salverda (Ed.), *Low-Wage Employment in Europe. Perspectives for Improvement* (pp. 157-164). Acco.

Document status and date:

Published: 01/01/2005

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

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Skill Obsolescence and Employability

by *Andries de Grip*¹

Introduction

In public policy, the upgrading of skills demanded in the labour market is broadly recognised as the major determinant of the competitive strength of the European Union's economy. This is clearly illustrated by the Lisbon 2000 strategic target of the European Council that Europe should "become the most competitive and dynamic knowledge-based society of the world" by 2010 (European Commission, 2000). In the emerging knowledge economy, the diffusion of information and communication technology and more or less related organisational changes are increasing the complexity of jobs in almost all sectors of the economy (Cf. Caroli and Van Reenen, 2001).

In this respect, policymakers are also focusing on the importance of life-long learning in order to keep the skills of the working population up-to-date. It is obvious that the position of low-skilled workers is threatened in a knowledge economy. From this perspective, the 2003 *Employment Guidelines* of the European Commission, derived from the so-called Lisbon agenda of the European Council, aim at a substantial increase in the adaptability of workers to the changing demands in the labour market (i.e. their *employability*) and improvements in access to training, in particular for low-skilled workers (European Commission, 2003a).

In this chapter, we focus on the employability of low-skilled workers. First, we briefly discuss the extent to which low-skilled workers are at risk due to skill obsolescence. Then, we consider the determinants of low-skilled workers' employability. Finally, we deal with the question in which way policymakers can contribute to the employability of the low-skilled population in the emerging knowledge economy.

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Skill obsolescence

Workers' skills can become obsolete for various reasons. De Grip and Van Loo (2002) distinguish between two different kinds of skill obsolescence:

Technical obsolescence of human capital. This refers to (1) the wear of skills due to the natural aging process, injuries or illness, or (2) the atrophy of skills due to career interruptions or as a result of specialisation.

Economic obsolescence of human capital. This affects the *value* of the human capital of workers, and is caused by changes in the job content, which are usually related to technological and organisational evolutions and shifts in the sector structure of employment.

It is obvious that greying knowledge economies of the Member States of the European Union face both kinds of skill obsolescence. Especially low-skilled workers suffer from *technical skill obsolescence*, because the physically demanding working conditions in the jobs where they are employed often accelerate the wear of their skills. Due to, for instance, persistent back pains they may at a certain age no longer be able to do their job properly. This usually makes the vocational skills of low-skilled workers who are employed in physically demanding jobs in the building trades, manufacturing or the health care sector of little worth once they have passed the age of 50.

Krahn and Lowe (1997) analysed the atrophy of workers' skills. They studied the impact on literacy loss of spending an extended period of time in a job with limited literacy requirements. They found that working in an environment with limited complexity leads to skill loss through atrophy. This also means that, for low-skilled workers who suffer from literacy loss due to the limited literacy requirements in their jobs, it will be difficult to participate in the required training courses in order to keep up with the skills demanded in their positions. These workers will therefore be hampered in trying to cope with all kinds of skill obsolescence.

Workers who have interrupted their professional careers also face a large risks of skill obsolescence due to atrophy of their skills. This holds for both workers who have suffered long-term unemployment and, in particular, women who have left the labour market for maternity (Arthur et al., 1998).

Furthermore, low-skilled workers might suffer from *economic skill obsolescence* due to the upgrading of skill requirements related to technological and organisational change and shifts in the sector structure of employment. Through this skill-biased technological change, low-skilled workers are crowded out of the jobs in which they were traditionally employed. This means that the 'skills package' the low-skilled workers can offer loses its value in the labour market. Ramirez (2002) found that the human capital of blue-collar workers is indeed affected more by technological change than the human capital of white-collar

workers. Moreover, workers who have only firm-specific skills may be more vulnerable to skill obsolescence as these skills are usually more technology-specific than the skills of workers who attended a broader vocational education. Bartel and Sicherman (1993) showed that particularly unexpected technology shocks induce skill obsolescence among older workers, whereas a more continuous flow of gradual changes in the skills demanded due to technological developments stimulates workers to invest more in additional training, which reduces the risk that their skills will become obsolete.

Apart from the upgrading of the skill *level* demanded in the labour market, technological and occupational changes induce shifts in the *type* of skills required, which may result in skill obsolescence among low-skilled workers. Green et al. (2000) found that in particular problem-solving skills, communication and social skills as well as computing skills are becoming increasingly important in many jobs, whereas the market price of manual skills is declining. Data on Dutch school-leavers show that graduates of vocational education report an increasing importance of planning and organising and teamwork skills in lower-level health care jobs as well as jobs in the transport sector, whereas in the technical jobs the practical use of technical knowledge is becoming more important (ROA, 2004). With respect to all these demand shifts, it may be difficult for low-skilled workers to keep their skills up-to-date. This may in particular hold for the older low-skilled workers who can only build on their firm-specific skills.

Employability

In the 1990s, there has been a growing awareness of the importance of workers' employability in both business and government policies. The paradigm of lifetime employment seems to have been replaced with a new paradigm of lifetime employability marked by a high degree of flexibility. Sanders and De Grip (2004) define a worker's employability as: *"The capacity as well as the willingness to be and to remain attractive in the labour market, by anticipating on changes in tasks and work environment and pro-acting on these changes."*

De Grip, Van Loo and Sanders (2004) provided a conceptualisation of the various aspects of workers' employability that takes account of both supply (i.e. workers) and demand (i.e. firm or industry) characteristics and also includes the Human Resource Management (HRM) facilities offered to employees to effectuate their employability. In particular, workers' capacity and willingness to (1) participate in training and (2) be mobile across jobs or flexible in the tasks they perform in their job determine their employability. Furthermore, the employ-

ability of workers depends on the extent to which they need to be employable. The latter, of course, depends on the degree of turbulence in the firm in which they are working. Finally, workers' employability is affected by the HRM facilities offered to them. This particularly holds for training facilities, job rotation schemes, performance evaluation interviews and re-integration facilities after long-term absence due to illness or injury.

With respect to workers' employability, it is important to distinguish between workers' internal and external employability (Groot and Maassen van den Brink, 2000). Workers' external employability refers to the ability and willingness to switch to a similar or a different job with another firm and therefore reflects the value of workers' human capital in the external labour market. Internal employability refers to a worker's ability and willingness to remain employed with the current employer and reflects the value of a worker's human capital in the internal labour market.

Sanders and De Grip (2004) found that almost all low-skilled workers in the Netherlands are rather optimistic about their employability. Only about 2% expect to be without a job in five years' time. The majority of the low-skilled workers expects to be working in their current or a similar job within the same firm five years on, whereas 15% of the workers expect to change jobs within the current firm, and about 10% expect to be working elsewhere. This indicates that the great majority of the low-skilled workers relies on their perspectives in the firm-internal labour market. Low-skilled workers who are employed in services more often expect to be firm-internally employable than low-skilled workers in manufacturing. Moreover, more than a fifth of the low-skilled workers do not think that it is important for them to participate in training in order to reduce the risk of losing their job due to skill obsolescence. This may indicate that they are working in jobs in which there are hardly any changes in job content due to technological or organisational change. Or it might be that these low-skilled workers are not aware that their employability is at risk.

Sanders and De Grip found that both low-skilled workers' training participation and task flexibility merely contribute to workers' firm-internal employability expectations. However, workers' participation in training plays a much more explicit role in low-skilled workers' firm-internal careers than their task flexibility. Participation in training enhances a worker's chance to move to another job in the firm-internal labour market. However, training participation and task flexibility do not contribute to the external employability of the low-skilled workers. Task flexible low-skilled workers even less often expect to be externally employable than non-task flexible workers. This shows that low-skilled workers' task flexibility might reduce the scope of their opportunities in the external labour market. Probably workers' willingness to be flexible in their job indicates their focus on a firm-internal career. Training participation does not seem to

play any role at all in workers' external employability, neither with respect to their perceptions, nor with respect to their actual external employability. These results can probably be explained by the fact that low-skilled workers usually have more opportunities to improve their position in the firm-internal labour market than they (would) have in the external labour market (De Grip and Wolbers, 2002). This is also shown by Sanders and De Grip's finding that the low-skilled workers who thought of themselves as being externally employable were more likely to move to another job in the internal labour market than to realise their external employability expectations.

De Grip and Zwick (2004) show that employment shares of low-skilled workers declined in the 1990s, although in Germany and the Netherlands the 'shake out' of low-skilled older workers occurred largely in the 1980s. They show that in most countries the activity rate of the low-skilled workforce has also been rather stable throughout the 1990s. However, it should be noted that in most countries the activity rates of the older low-skilled workers are far below the targets of the Lisbon agenda of the European Union. At the Stockholm meeting of 2001, the European Council set the target that, by 2010, some 50% of all persons in the age of 55-64 should be employed (European Commission, 2003b). With respect to the low-skilled workers, only in the UK is the activity rate above this policy target, whereas in particular in France and Italy the activity rates of the low-skilled older workers fall far behind.

Policy conclusions

How can policymakers contribute to the employability of the low-skilled population in the emerging knowledge economy? A good starting point for answering this question is the notion that participation in the knowledge economy requires that youngsters leave initial education with literacy, knowledge, and learning skills, which enables them to learn more effectively in the workplace (Cf. Hughes, O'Connell and Williams, 2004). Moreover, complementarities between schooling and training increase the motivation of employers to offer continuing training to their workers. For these reasons, it is of major importance to reduce the number of youngsters that leave initial education without at least a lower-level vocational certificate. Educational policies should therefore focus on reducing the number of school drop-outs, for instance by offering more opportunities for remedial teaching in primary education and by creating more practical learning routes in junior vocational education that are more suitable for youngsters with fewer cognitive skills. By reducing the relative supply of low-skilled work-

ers, it will become easier for the remaining low-skilled workers to find a suitable job.

The employability of low-skilled workers can also be improved by a greater emphasis in initial vocational education on skills that increase the trainability of low-skilled workers in the curricula of lower-level vocational education. One example is the explicit introduction of key skills by the UK Government in 2000, such as communication skills, numeracy, information technology skills, problem-solving skills, or skills necessary to work with other people in school curricula (Dickerson and Green, 2002).

For the employability of low-skilled workers who are employed in physically demanding jobs it is important to improve their working conditions as much as possible. Furthermore, it is important to offer these workers training courses on how to cope with the physically demanding tasks they have to perform and courses on safety improvement in the workplace.

The Dutch Social Economic Council (SER, 2002) asserts that the employability of low-skilled workers is the shared responsibility of the workers and the firms by which they are employed. This means that firms should invest in HRM practices that contribute to the employability of low-skilled workers and that workers should be willing to make use of the opportunities available to them. Government policies should attempt to increase the incentives for firms to improve the employability of less-skilled employees within the firms by including these workers in job training programmes and job rotation schemes. De Grip and Wolbers (2002) showed that low-skilled workers are indeed better off in countries where internal labour markets dominate and employees have more opportunities to change jobs within the firm.

Governments should contribute to the incentives for low-skilled workers to remain employable. On the one hand, tax credits could be granted to workers who invest in their own human capital. On the other, labour market participation by the low-skilled workforce should be encouraged by enlarging the income differential between the low-skilled workers who are (still) employed and the low-skilled who are withdrawn from the labour market, for instance by granting tax credits to older workers who continue to participate in the labour market.

Government policies to stimulate training participation of low-skilled workers should particularly focus on older workers who face skill obsolescence, as these workers may be reluctant to (re)invest in their human capital, since the period over which they can amortise their training investment is usually shorter than in the case of younger workers.

Moreover, governments should make it easier for workers who left initial education without any diploma to obtain a certificate of a vocational course later in life. The latter should be stimulated by creating assessment systems that enable low-skilled workers to demonstrate the skills they have acquired through on-the-

job experience. Such a system of “Accreditation of Prior Learning (APL)” can contribute to the self-esteem of low-skilled workers because it gives a certain status to the knowledge and skills they acquired in the workplace. Moreover, the accreditation of their prior learning enables low-skilled workers to substitute skills learnt on the job for some of the modules of a vocational education. This might encourage them to participate in training courses for the modules that complete their vocational certificate. A broad application of APL can be encouraged if it is facilitated by means of tax reductions for the firms or workers who bear the training costs.

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